

FHWA REGION NO	STATE	FED. AID PROJ. NO	SHEET NO.	TOTAL SHEETS
3	MD.	STPG-218-1(7)E	57	66

EQUIPMENT LISTS

EQUIPMENT TO BE SUPPLIED BY THE SHA.				SPECIFICATION		DESCRIPTION
QUANTITY	UNIT	SECTION				
1	EA	SP				BASE MOUNTED LOCAL CABINET (SIZE 5) LESS DETECTION EQUIPMENT WITH 8 PHASE ASC II CONTROLLER WITH TELEMETRY AND OPTICOM PRE-EMPTION MODULE
8	SF	813				FLAT SHEET ALUMINUM SIGNS CONSISTING OF: - 1 EACH R10-12 (30" X 36")-MAST ARM MOUNT
B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR.						
QUANTITY	UNIT	SECTION		DESCRIPTION		
5	CY	205		TEST PIT EXCAVATION		
11	CY	206		REMOVAL OF EXISTING SIDEWALK		
850	SF	610		4 INCH CONCRETE SIDEWALK		
1	EA	816		INSTALL CONTROLLER AND CABINET-- BASE MOUNT		
8	SF	813		INSTALL OVERHEAD SIGN		
5	EA	SP		FURNISH AND INSTALL 12 INCH 1 WAY 3 SECTION (R, Y, G) SIGNAL HEAD HAVING PROPER ADJUSTABLE MAST ARM BRACKET, AND TUNNEL VISORS--PAINTED BLACK		
2	EA	SP		FURNISH AND INSTALL 12 INCH 1 WAY 5 SECTION (R, Y, YA, G, GA) SIGNAL HEAD HAVING PROPER ADJUSTABLE MAST ARM BRACKET, AND TUNNEL VISORS--PAINTED BLACK		
2	EA	SP		PAINT EXISTING MAST ARM POLE--GREEN		
3	EA	SP		PAINT EXISTING MAST ARM--GREEN		
1	EA	811		FURNISH AND INSTALL ELECTRICAL HANDHOLE		
3	EA	SP		FURNISH AND INSTALL ELECTRICAL HANDHOLE (CITY STANDARD)		
1	CY	801		FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION		
2	EA	SP		FURNISH AND INSTALL CONDUIT BEND IN EXISTING BASE		
40	LF	805		FURNISH AND INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT--RISER		
90	LF	805		FURNISH AND INSTALL 2" SCHEDULE 40 RIGID PVC CONDUIT--TRENCHED		
15	LF	805		FURNISH AND INSTALL 4" SCHEDULE 40 RIGID PVC CONDUIT--TRENCHED		
90	LF	805		FURNISH AND INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT--SLOTTED		
1	EA	807		FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT		
1	EA	SP		AS--BUILT FOR TRAFFIC SIGNAL		
3	EA	804		FURNISH AND INSTALL GROUND ROD--3/4 INCH DIAMETER X 10--FOOT LENGTH		
175	LF	810		FURNISH AND INSTALL NO. 6 AWG STRANDED BARE COPPER GROUND WIRE		
225	LF	810		FURNISH AND INSTALL ELECTRICAL CABLE-- 1 CONDUCTOR (NO. 4 AWG -- THHN/THWN)		
100	LF	810		FURNISH AND INSTALL ELECTRICAL CABLE-- 2 CONDUCTOR (NO 14 AWG)		
400	LF	810		FURNISH AND INSTALL ELECTRICAL CABLE-- 5 CONDUCTOR (NO 14 AWG)		
300	LF	810		FURNISH AND INSTALL ELECTRICAL CABLE-- 7 CONDUCTOR (NO 14 AWG)		
600	LF	810		FURNISH AND INSTALL OPTICOM M-138 DETECTOR CABLE		
1	LS	SP		DELIVERY OF SALVAGED EQUIPMENT		
1	LS	SP		REMOVE AND DISPOSE OF EXISTING EQUIPMENT		
1	LS	SP		REMOVAL OF EXISTING SIGNAL EQUIPMENT TO BE SALVAGED		
NOTE: ALL EQUIPMENT AND/OR MATERIALS TO BE REMOVED BY THE CONTRACTOR, BUT NOT LISTED BELOW, SHALL BECOME THE PROPERTY OF THE CONTRACTOR.						
QUANTITY	UNIT	DESCRIPTION				
1	EA	CONTROLLER AND CABINET				

NOTE: ALL EQUIPMENT AND/OR MATERIALS TO BE REMOVED BY THE CONTRACTOR, BUT NOT LISTED BELOW, SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

CITY OF HAGERSTOWN, MARYLAND ENGINEERING DEPARTMENT

LOCATION: Summit Ave. at
West Antietam St.

TITLE: TRAFFIC SIGNAL UPGRADE

DRAWN BY	A.W. (BASE PLAN)	DATE	8-96
SURVEY BY	A.J.B.	DATE	7-96
SCALES	HORIZONTAL: 1" = 10'	VERTICAL:	
APPROVED		FILE NUMBER	
DATE		BY	
		CITY ENGINEER	
		67-054-21	

MDOT - STATE HIGHWAY ADMINISTRATION

Office of Traffic & Safety

TRAFFIC ENGINEERING DESIGN DIVISION

LOG M. 21MSUM00.34

Summit Ave. at West Antietam St.

COUNTY: WASHINGTON

DRAWN BY: T. COURVILLE

DES. BY: J. LAWRENCE

CHK. BY:

DATE: 05/30/97

SCALE: 1" = 10'

F.A.P. NO.

S.H.A. NO.

CITY NO.

STPG-218-1(7)E

WA9535185

87-243-332

TS

NO.

3718

SHEET NO.

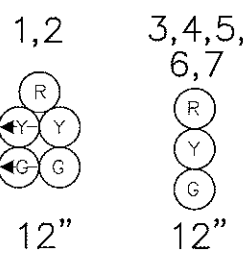
57 OF 66

PHASING DIAGRAM

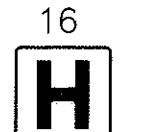
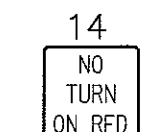
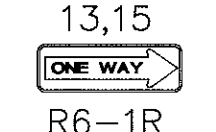
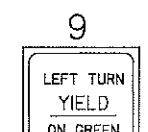
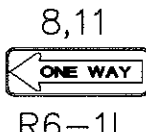
	1	2	3	4	5	6	7
PHASE 1+6	G	G	G	R	R	R	R
1 CHANGE	G	G	Y	R	R	R	R
PHASE 2+6	G	G	G	G	G	R	R
2+6 CHANGE	Y	Y	Y	Y	Y	R	R
PHASE 4	R	R	R	R	R	G	G
4 CHANGE	R	R	R	R	R	Y	Y
PRE-EMPTION A	R	R	R	G	G	R	R
CHANGE A	R	R	R	Y	Y	R	R
PRE-EMPTION B	G	G	G	R	R	R	R
CHANGE B	Y	Y	Y	R	R	R	R
PRE-EMPTION C	R	R	R	R	R	G	G
CHANGE C	R	R	R	R	R	Y	Y
FLASHING OPERATION	FL	FL	FL	FL	FL	FL	FL

WEST ANTIETAM STREET IS ASSUMED
TO RUN IN AN EAST-WEST DIRECTION.

SIGNALS



SIGNS



NOTE: ALL SIGNS EXCEPT NO. 9 ARE EXISTING.

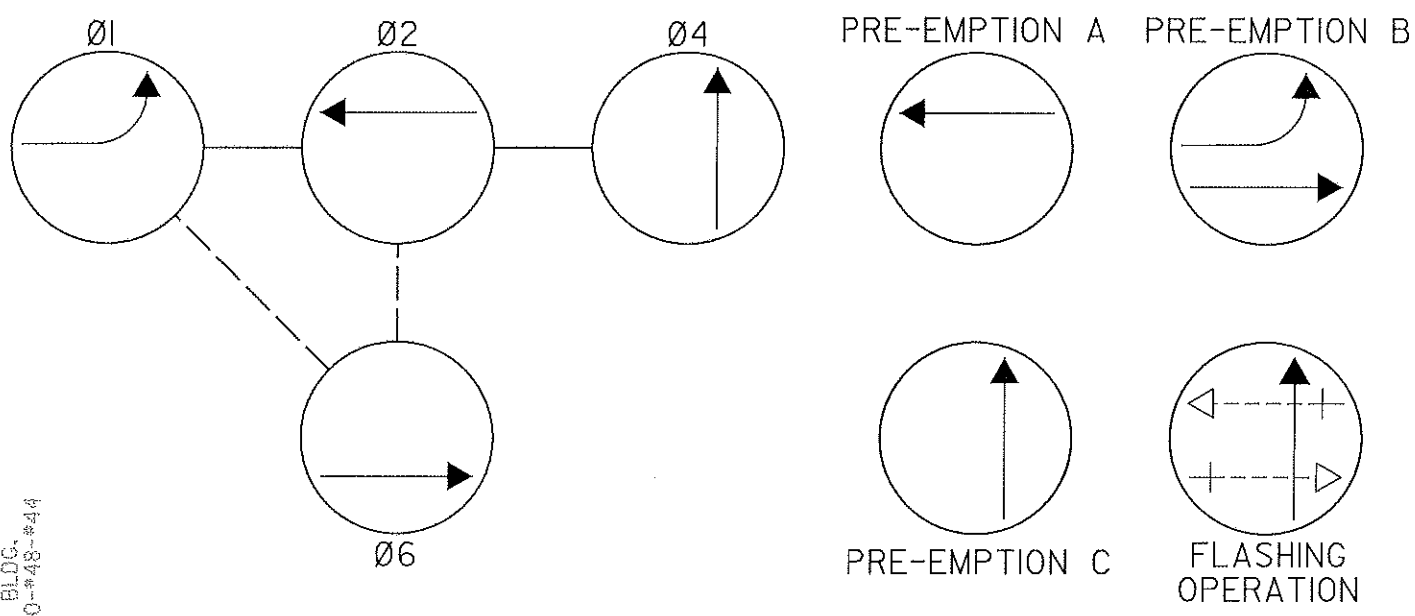
CONSTRUCTION DETAILS

- INSTALL BASE MOUNTED CABINET, SIZE #5, AND CONTROLLER WITH ALL NECESSARY EQUIPMENT AS SHOWN (NOTE: 2-4", 90-DEGREE P.V.C. BENDS AND 2-2" 90-DEGREE P.V.C. BENDS).
- INSTALL 2" P.V.C. (SCHEDULE 40) ELECTRICAL CONDUIT (TRENCHED).
- INSTALL 2" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (SLOTTED).
- INSTALL 4" P.V.C. (SCHEDULE 40) ELECTRICAL CONDUIT (TRENCHED).
- INSTALL SIGN ON EXISTING MAST ARM.
- INSTALL 2" P.V.C. BEND IN EXISTING BASE.
- REMOVE AND REPLACE SIGNAL HEAD.
- INSTALL SIGNAL HEAD ON EXISTING MAST ARM.
- INSTALL 2" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT - RISER AND 2" WEATHERHEAD.
- INSTALL HANDHOLE
- INSTALL HANDHOLE (CITY STANDARD).
- REMOVE AND REPLACE EXISTING SIDEWALK.
- CONSTRUCT SIDEWALK RAMP.
- REMOVE EXISTING CONTROLLER, SPLICE EXISTING FIRE STATION PRE-EMPTION CABLE TO 2 CONDUCTOR CABLE. (COORDINATE WITH CITY ENGINEERING DEPARTMENT FOR CONNECTION DETAILS).
- INSTALL 10' OF 2" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT - RISER AND COIL 25' OF ADDITIONAL CABLE.
- USE EXISTING OPTICOM DETECTOR.

UTILITY LEGEND

— G —	G	GAS MAIN
— W —	W	WATER MAIN
— S —	S	SEWER MAIN
— TV —	TV	STORM DRAIN
— C —	C	CABLE TELEVISION
— E —	E	ELECTRIC CABLES
— T —	T	TELEPHONE CABLES
— A —	A	AERIAL CABLES

NEMA PHASING



PHASING NOTES:

- PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY
- PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY

INTERSECTION DESCRIPTION

I. GENERAL

THIS INTERSECTION IS SUMMIT AVENUE AND WEST ANTIETAM STREET. CONSTRUCTION AT THIS INTERSECTION INVOLVES THE REPLACEMENT OF THE EXISTING TRAFFIC SIGNAL CONTROLLER AND INTERCONNECTION WITH THE OTHER SIGNALIZED INTERSECTIONS IN THE NEW CITY-WIDE SYSTEM. IT IS ASSUMED THAT WEST ANTIETAM STREET RUNS IN AN EAST-WEST DIRECTION.

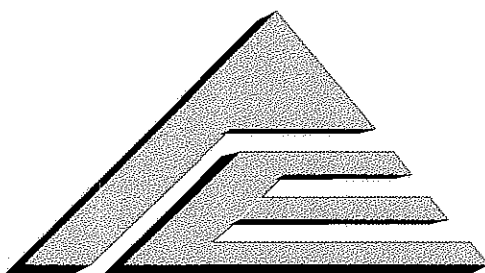
II. INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA FOUR (4) PHASE PRE-TIMED MODE. EASTBOUND AND WESTBOUND WEST ANTIETAM STREET WILL OPERATE CONCURRENTLY WITH EASTBOUND WEST ANTIETAM STREET OPERATING IN A LEADING PHASE. NORTHBOUND SUMMIT AVENUE WILL OPERATE SEPARATELY.

THE FIRE STATION PRE-EMPTION CABLE FROM THE FIRE STATION ON SUMMIT AVENUE SOUTH OF THE INTERSECTION WILL BE SPLICED TO A NEW 2 CONDUCTOR CABLE IN THE EXISTING CONTROLLER CABINET ON THE SOUTHWEST CORNER. PRE-EMPTION FROM THE FIRE STATION WILL CALL PRE-EMPTION C.

PRE-EMPTION ON WESTBOUND WEST ANTIETAM STREET WILL CALL PRE-EMPTION A. PRE-EMPTION ON EASTBOUND WEST ANTIETAM STREET WILL CALL PRE-EMPTION B. PRE-EMPTION ON NORTHBOUND SUMMIT AVENUE WILL CALL PRE-EMPTION C.

A NEW EIGHT PHASE FULLY ACTUATED CONTROLLER WITH TELEMETRY MODULE AND PRE-EMPTION HOUSED IN A GROUND MOUNTED CABINET WILL BE INSTALLED.



A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21158
A/E Job No. 96-317

REVISIONS

APPROVALS

CHIEF, SIGNAL DESIGN SECTION

ASST. DISTRICT ENGINEER, TRAFFIC

CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION

DIRECTOR, OFFICE OF TRAFFIC & SAFETY